

10

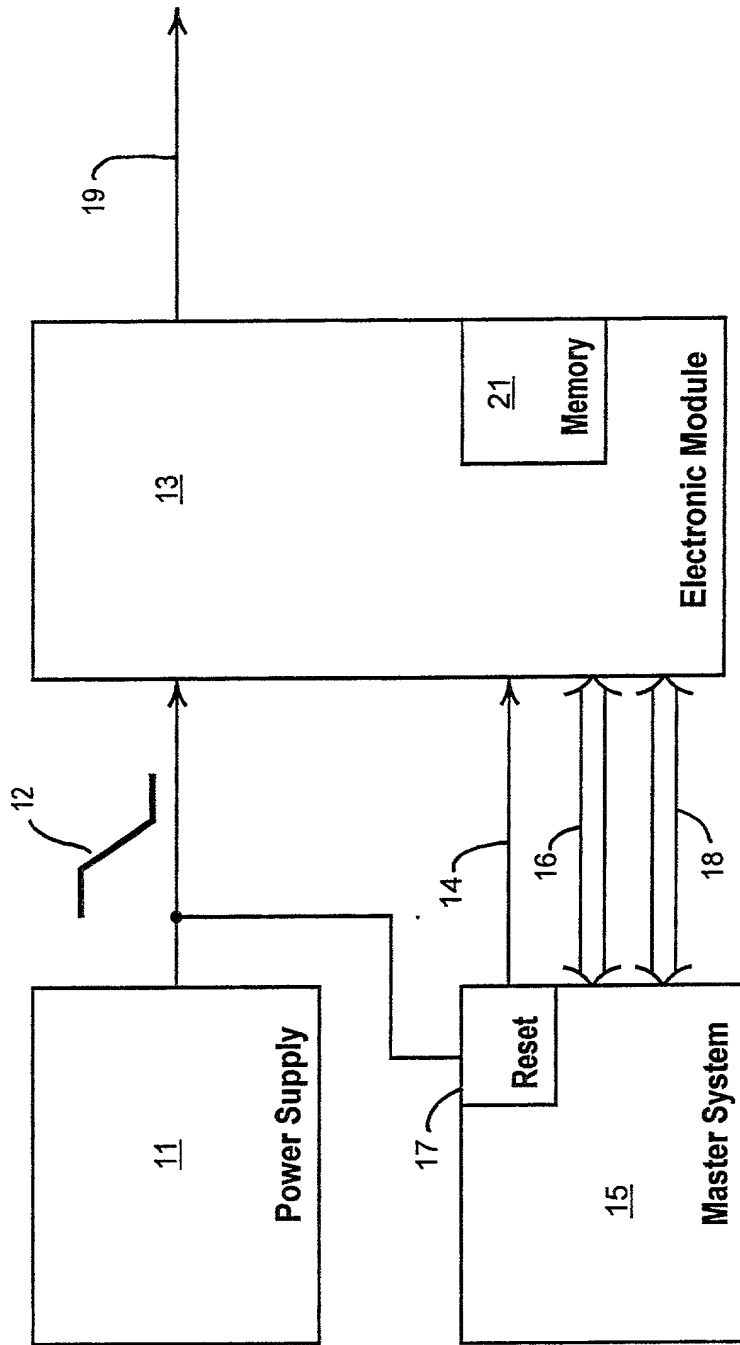


Fig. 1  
(PRIOR ART)

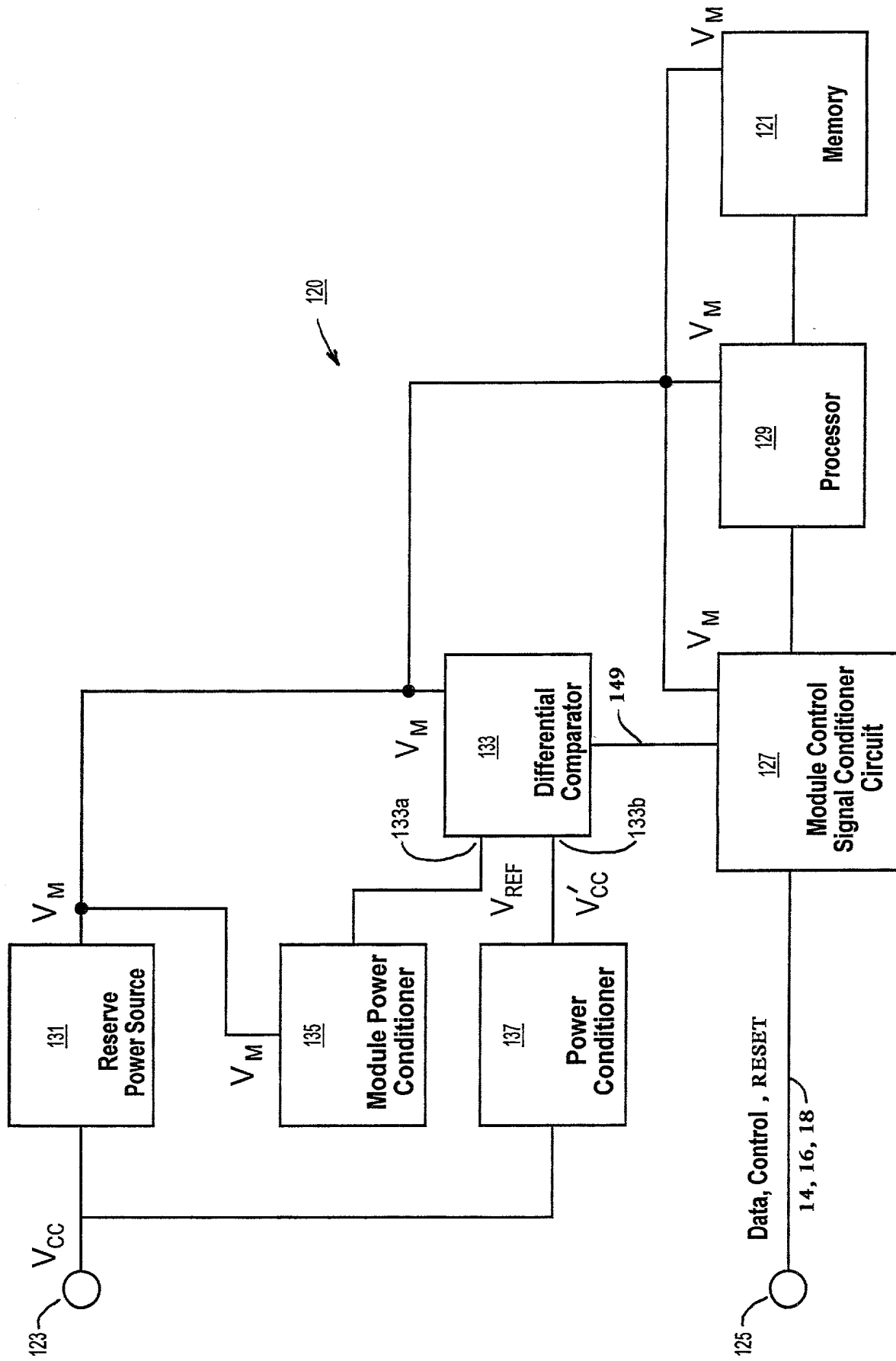


Fig. 2

**Fig. 3**

The schematic diagram illustrates a circuit for a card reader. A microcontroller (151) is connected to a card (149) via a series of logic gates and a buffer (143). The microcontroller (151) has pins labeled 1A, 1B, 1C, 2A, 2B, 2C, 3A, 3B, 3C, 4A, 4B, 4C, 5A, 5B, 5C, 6A, 6B, 6C, 7A, 7B, 7C, 8A, 8B, 8C, 9A, 9B, 9C, 10A, 10B, 10C, 11A, 11B, 11C, 12A, 12B, 12C, 13A, 13B, 13C, 14A, 14B, 14C, 15A, 15B, 15C, 16A, 16B, 16C, 17A, 17B, 17C, 18A, 18B, 18C, 19A, 19B, 19C, 20A, 20B, 20C, 21A, 21B, 21C, 22A, 22B, 22C, 23A, 23B, 23C, 24A, 24B, 24C, 25A, 25B, 25C, 26A, 26B, 26C, 27A, 27B, 27C, 28A, 28B, 28C, 29A, 29B, 29C, 30A, 30B, 30C, 31A, 31B, 31C, 32A, 32B, 32C, 33A, 33B, 33C, 34A, 34B, 34C, 35A, 35B, 35C, 36A, 36B, 36C, 37A, 37B, 37C, 38A, 38B, 38C, 39A, 39B, 39C, 40A, 40B, 40C, 41A, 41B, 41C, 42A, 42B, 42C, 43A, 43B, 43C, 44A, 44B, 44C, 45A, 45B, 45C, 46A, 46B, 46C, 47A, 47B, 47C, 48A, 48B, 48C, 49A, 49B, 49C, 50A, 50B, 50C, 51A, 51B, 51C, 52A, 52B, 52C, 53A, 53B, 53C, 54A, 54B, 54C, 55A, 55B, 55C, 56A, 56B, 56C, 57A, 57B, 57C, 58A, 58B, 58C, 59A, 59B, 59C, 60A, 60B, 60C, 61A, 61B, 61C, 62A, 62B, 62C, 63A, 63B, 63C, 64A, 64B, 64C, 65A, 65B, 65C, 66A, 66B, 66C, 67A, 67B, 67C, 68A, 68B, 68C, 69A, 69B, 69C, 70A, 70B, 70C, 71A, 71B, 71C, 72A, 72B, 72C, 73A, 73B, 73C, 74A, 74B, 74C, 75A, 75B, 75C, 76A, 76B, 76C, 77A, 77B, 77C, 78A, 78B, 78C, 79A, 79B, 79C, 80A, 80B, 80C, 81A, 81B, 81C, 82A, 82B, 82C, 83A, 83B, 83C, 84A, 84B, 84C, 85A, 85B, 85C, 86A, 86B, 86C, 87A, 87B, 87C, 88A, 88B, 88C, 89A, 89B, 89C, 90A, 90B, 90C, 91A, 91B, 91C, 92A, 92B, 92C, 93A, 93B, 93C, 94A, 94B, 94C, 95A, 95B, 95C, 96A, 96B, 96C, 97A, 97B, 97C, 98A, 98B, 98C, 99A, 99B, 99C, 100A, 100B, 100C, 101A, 101B, 101C, 102A, 102B, 102C, 103A, 103B, 103C, 104A, 104B, 104C, 105A, 105B, 105C, 106A, 106B, 106C, 107A, 107B, 107C, 108A, 108B, 108C, 109A, 109B, 109C, 110A, 110B, 110C, 111A, 111B, 111C, 112A, 112B, 112C, 113A, 113B, 113C, 114A, 114B, 114C, 115A, 115B, 115C, 116A, 116B, 116C, 117A, 117B, 117C, 118A, 118B, 118C, 119A, 119B, 119C, 120A, 120B, 120C, 121A, 121B, 121C, 122A, 122B, 122C, 123A, 123B, 123C, 124A, 124B, 124C, 125A, 125B, 125C, 126A, 126B, 126C, 127A, 127B, 127C, 128A, 128B, 128C, 129A, 129B, 129C, 130A, 130B, 130C, 131A, 131B, 131C, 132A, 132B, 132C, 133A, 133B, 133C, 134A, 134B, 134C, 135A, 135B, 135C, 136A, 136B, 136C, 137A, 137B, 137C, 138A, 138B, 138C, 139A, 139B, 139C, 140A, 140B, 140C, 141A, 141B, 141C, 142A, 142B, 142C, 143A, 143B, 143C, 144A, 144B, 144C, 145A, 145B, 145C, 146A, 146B, 146C, 147A, 147B, 147C, 148A, 148B, 148C, 149A, 149B, 149C, 150A, 150B, 150C, 151A, 151B, 151C, 152A, 152B, 152C, 153A, 153B, 153C, 154A, 154B, 154C, 155A, 155B, 155C, 156A, 156B, 156C, 157A, 157B, 157C, 158A, 158B, 158C, 159A, 159B, 159C, 160A, 160B, 160C, 161A, 161B, 161C, 162A, 162B, 162C, 163A, 163B, 163C, 164A, 164B, 164C, 165A, 165B, 165C, 166A, 166B, 166C, 167A, 167B, 167C, 168A, 168B, 168C, 169A, 169B, 169C, 170A, 170B, 170C, 171A, 171B, 171C, 172A, 172B, 172C, 173A, 173B, 173C, 174A, 174B, 174C, 175A, 175B, 175C, 176A, 176B, 176C, 177A, 177B, 177C, 178A, 178B, 178C, 179A, 179B, 179C, 180A, 180B, 180C, 181A, 181B, 181C, 182A, 182B, 182C, 183A, 183B, 183C, 184A, 184B, 184C, 185A, 185B, 185C, 186A, 186B, 186C, 187A, 187B, 187C, 188A, 188B, 188C, 189A, 189B, 189C, 190A, 190B, 190C, 191A, 191B, 191C, 192A, 192B, 192C, 193A, 193B, 193C, 194A, 194B, 194C, 195A, 195B, 195C, 196A, 196B, 196C, 197A, 197B, 197C, 198A, 198B, 198C, 199A, 199B, 199C, 200A, 200B, 200C, 201A, 201B, 201C, 202A, 202B, 202C, 203A, 203B, 203C, 204A, 204B, 204C, 205A, 205B, 205C, 206A, 206B, 206C, 207A, 207B, 207C, 208A, 208B, 208C, 209A, 209B, 209C, 210A, 210B, 210C, 211A, 211B, 211C, 212A, 212B, 212C, 213A, 213B, 213C, 214A, 214B, 214C, 215A, 215B, 215C, 216A, 216B, 216C, 217A, 217B, 217C, 218A, 218B, 218C, 219A, 219B, 219C, 220A, 220B, 220C, 221A, 221B, 221C, 222A, 222B, 222C, 223A, 223B, 223C, 224A, 224B, 224C, 225A, 225B, 225C, 226A, 226B, 226C, 227A, 227B, 227C, 228A, 228B, 228C, 229A, 229B, 229C, 230A, 230B, 230C, 231A, 231B, 231C, 232A, 232B, 232C, 233A, 233B, 233C, 234A, 234B, 234C, 235A, 235B, 235C, 236A, 236B, 236C, 237A, 237B, 237C, 238A, 238B, 238C, 239A, 239B,

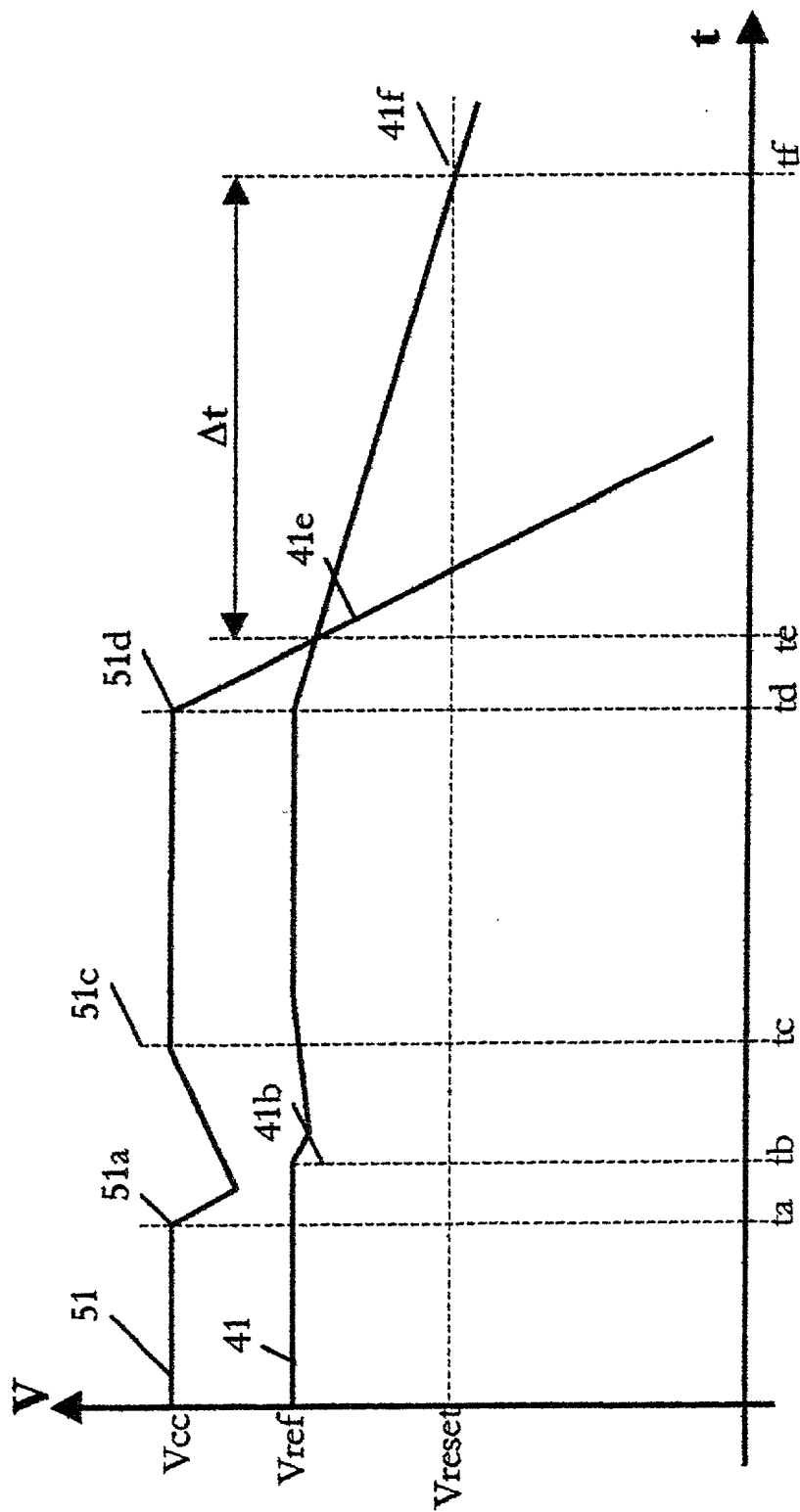


FIG. 4

ZWC